

## **EXECUTIVE SUMMARY**

### **A STUDY OF THE IMPACT OF RAISING THE MINIMUM WAGE IN SOUTH DAKOTA**

**By  
Ralph J. Brown and Dennis A. Johnson\***

This study has examined the impact of raising the minimum wage in South Dakota. An analysis was conducted for four different scenarios regarding the minimum wage. It was assumed that the minimum wage was increased from its present \$5.15 per hour to \$5.65, \$6.00, \$6.15, and \$6.35 per hour. Analysis of employment data indicated that in 2004 the number of affected workers by wage rate (including tips) is:

6,729 workers earn \$5.65 per hour or less,  
14,621 workers earn \$6.00 per hour or less,  
18,003 workers earn \$6.15 per hour or less,  
22,513 workers earn \$6.35 per hour or less.

The counties with the highest percentage of low-wage workers were Gregory, McCook, and Tripp counties with more than 20 percent of wage and salary workers earning \$6.35 or less per hour. The industries with the highest percentage of low-wage workers were food service and drinking places, leisure and hospitality, accommodation, and food and beverage stores.

Based on standard economic theory, the analysis determined the impact in terms of the benefits and costs of an increase in the minimum wage rate. The benefits of an increase in the minimum wage are experienced by low-wage workers who realize an increase in wages.

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Employers who must pay higher wages realize a loss. The gains and losses at this point are offsetting. However, this does not take into account job losses.

Economic theory indicates that as the minimum wage rate is increased some workers will lose their jobs. The higher the minimum wage rate the greater the job loss. Using a consensus elasticity estimate of -0.2, where a 10 percent increase in the minimum wage will reduce employment by 2 percent, we estimated the “disemployment” impact of an increase in the minimum wage rate. The analysis indicates a job loss of 32 workers if the minimum wage rate is raised to \$5.65 per hour. If the minimum wage rate is increased to \$6.00 per hour the job loss is estimated to be 153 workers. If the minimum wage rate is raised to \$6.15 per hour the job loss is estimated at 233 workers and at a minimum wage of \$6.35 per hour the loss is estimated at 365 workers. These job losses represent a loss to both the workers who now do not have a job and to the employers who would have profitably employed these out-of-work workers. These losses represent a net loss to society because they represent losses for which there is no offsetting gain. Fewer people are employed and contributing to the economy than before the minimum wage increase.

As shown in the Table below, the job losses depend on the level of the minimum wage rate and range from 32 to 365 jobs lost. The benefits to the low-wage workers who realize a pay raise range from \$1.51 million for a minimum wage increase from \$5.15 per hour to \$5.65 per hour to \$17.72 million for an increase to \$6.35 per hour. The lost wages for the low-wage workers who lose their jobs range from \$0.30 million to \$3.63 million. The employer losses range from \$1.52 million to \$17.94 million. The employer losses exceed the low-wage worker gains because the employer loss includes the higher wages paid to employed workers plus the lost profits from employing fewer workers. Finally, the net loss, or what economist's call

deadweight loss, ranges from \$0.31 million for the minimum wage increase to \$5.65 per hour to \$3.84 million for a minimum wage increase to \$6.35 per hour. This net loss occurs because of the disemployment effects of the minimum wage increase. As further indicated, the loss is about \$1.21 per dollar gained. What this indicates is that increases in the minimum wage are an inefficient way of assisting low-wage workers.

Impacts of Increasing the Minimum Wage in South Dakota				
	Increasing the Minimum Wage from \$5.15 to:			
	\$5.65	\$6.00	\$6.15	\$6.35
Effect				
Disemployment	32	153	233	365
Increase in Earnings of Employed LWW*	\$1.51 mil	\$7.30 mil	\$11.24 mil	\$17.72 mil
Disemployed Lost Earnings	\$0.30 mil	\$1.48 mil	\$2.29 mil.	\$3.63 mil
Total Change Earnings: LWW	\$1.20 mil	\$5.82 mil	\$8.95 mil	\$14.10 mil
Employer Losses	\$1.52 mil	\$7.36 mil	\$11.35 mil	\$17.94 mil
Net Loss (Deadweight Loss)	\$0.31 mil	\$1.54 mil	\$2.40 mil	\$3.84 mil
Loss per Dollar Gained	\$1.21	\$1.21	\$1.21	\$1.22
*Low-Wage Worker				

So what are we to conclude from this analysis? We will try to answer this question by posing a series of questions and answers based on our study.

**Question:** Does an increase in the minimum wage benefit low-wage workers?

**Answer:** Yes, it raises the income for many low-wage workers.

**Question:** Do some workers lose as result of an increase in the minimum wage?

**Answer:** Yes, the workers who find themselves without a job are losers.

**Question:** Do some employers lose as result of the minimum wage increase?

**Answer:** Yes, those employers who have to pay higher wages to the workers who retain their jobs.

**Question:** Do some employers lose as result of employing fewer workers than before the increase?

**Answer:** Yes, those employers who lose profits from employing fewer workers due to the higher wage.

**Question:** Overall, are workers better off as a result of the minimum wage increase?

**Answer:** Yes, the gains in income from the workers who retain their jobs are greater than the losses suffered by workers who lost their jobs.

**Question:** Overall, are employers better off as a result of the minimum wage increase?

**Answer:** No, they must pay higher wages than before and lose the profits they would have earned on the marginal workers who are now unemployed.

**Question:** Is society better off as a result of a higher minimum wage?

**Answer:** No, society is worse off if the well being of society is measured by society's income. Increasing the minimum wage reduces total societal income as a result of the job losses suffered by some workers and the lost profits to employers who would have profitably employed them.

Finally, it should be noted that if the minimum wage is set in nominal terms, over time, inflation reduces the real minimum wage. For instance, the minimum wage was set at \$5.15 per hour in 1997 and has not changed since. Between 1997 and 2005, prices have increased by 22 percent. This reduces the real minimum wage to \$4.22 in 1997 purchasing power.

This study has attempted to provide policymakers with useful information that will assist them in evaluating a proposal to raise the minimum wage. We do not, however, make the policy choice. We have provided estimates of the benefits and costs that result from different levels of the minimum wage. Obviously, the choice is left to people elected to make these choices.

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## **INTRODUCTION**

The current minimum wage in South Dakota is \$5.15 per hour and has been at this level since 1997. In recent years there has been a discussion about raising the minimum wage rate in South Dakota. The proposed new minimum wage varies between \$5.65 (roughly a 10 percent increase) to \$6.35 per hour (cost-of-living adjusted minimum wage of \$5.15 per hour). An increase in the minimum wage is often controversial with both sides providing arguments supporting their position.

Proponents argue that a higher minimum wage will:

1. directly benefit low-wage workers by increasing their income,
2. reduce poverty,
3. stimulate the economy by increasing the purchasing power of low-wage workers,
4. provide greater equity and fairness.

Opponents of a higher minimum wage argue that it will:

1. reduce employment by pricing low-skill workers out of the labor market,
2. raise barriers to people with little or no work experience to find the initial job that would provide experience and on-the-job training that would allow them to earn higher wages,

3. increase the cost of labor to businesses,
4. lead to higher prices as businesses attempt to cover higher costs through higher prices.

The purpose of this paper is to study the probable impacts of a higher minimum wage in South Dakota. Both benefits and costs of a higher minimum wage will be studied and quantified. As in all policy changes, there is the matter of tradeoffs where there are benefits and costs of the new policy. It is the intent of this study to provide policymakers with information about the benefits and costs of a higher minimum wage in South Dakota.

### **WHO WORKS AT THE MINIMUM WAGE RATE?**

The Fair Labor Standards Act establishes the federal minimum wage and overtime pay affecting full-time and part-time workers in the private sector and in Federal, State, and local governments. The federal minimum wage was first set at \$0.25 per hour in 1938. Over the years it has been increased and since September, 1997 it has been \$5.15 per hour. The South Dakota minimum wage has also been \$5.15 per hour since 1997.

#### **I. COVERAGE**

According to the U.S. Department of Labor, there are two ways that an employee can be covered by the law: enterprise coverage or individual coverage. Covered enterprises include:

Employees who work for certain businesses or organizations (or "enterprises") are covered by the FLSA. These enterprises, which must have at least two employees, are:

- (1) those which do at least \$500,000 a year in business

(2) hospitals, businesses providing medical or nursing care for residents, schools and preschools, and government agencies.<sup>1</sup>

Individual coverage includes:

Even when there is no enterprise coverage, employees are protected by the FLSA if their work regularly involves them in commerce between States ("interstate commerce"). In its own words, the law covers individual workers who are "engaged in commerce or in the production of goods for commerce."

Examples of employees who are involved in interstate commerce include those who: produce goods (such as a worker assembling components in a factory or a secretary typing letters in an office) that will be sent out of state, regularly make telephone calls to persons located in other States, handle records of interstate transactions, travel to other States on their jobs, and do janitorial work in buildings where goods are produced for shipment outside the State.

Also, domestic service workers (such as housekeepers, full-time babysitters, and cooks) are normally covered by the law.<sup>2</sup>

## **II. WORKERS RECEIVING TIPS**

Workers receiving tips are also covered by the minimum wage. According to the Labor Department:

An employer of a tipped employee is only required to pay \$2.13 an hour in direct wages if that amount plus the tips received equals at least the federal minimum wage, the employee retains all tips and the employee customarily and regularly receives more than \$30 a month in tips. If an employee's tips combined with the employer's direct wages of at least \$2.13 an hour do not equal the federal minimum hourly wage, the employer must make up the difference.

Some states have minimum wage laws specific to tipped employees. When an employee is subject to both the federal and state wage laws, the employee is entitled to the provisions of each law which provide the greater benefits.<sup>3</sup>

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<sup>1</sup> <http://www.dol.gov/esa/regs/compliance/whd/whdfs14.htm>

<sup>2</sup> *Ibid.*

<sup>3</sup> *Ibid.*

### III. THE DATA

This study uses four alternative assumptions about the proposed new minimum wage in South Dakota. The four different levels of the new minimum wage that are analyzed are:

1. \$5.65 per hour,
2. \$6.00 per hour,
3. \$6.15 per hour,
4. \$6.35 per hour.

Data on the distribution of low-wage workers in South Dakota in 2004, based on the *Occupational Employment Survey*, was supplied by the Labor Market Information Center of the South Dakota Department of Labor. This data is presented in Table 1 for nonfarm wage and salary workers in South Dakota. All wages included tips. As shown in Table 1, if the minimum wage were raised to \$5.65 per hour this would affect approximately 6,729 workers or 1.8 percent of all nonfarm wage and salary workers in South Dakota. If the minimum wage were raised to \$6.00 per hour this would affect approximately 14,621 workers or 3.9 per cent of workers. At \$6.15 per hour, approximately 18,003 workers or 4.9 percent and at \$6.35 per hour approximately 22,513 or 6.1 percent of the workers would be affected. Farm workers are not included in this survey. In 2004, there were 3,774 hired farm workers in South Dakota. Analysis of data for this group of workers indicates that there are fewer than 377 workers who made less than \$6.46 per hour (10<sup>th</sup> percentile). Comparing this to the 22,513 nonfarm workers who earn \$6.35 or less per hour indicates that omission of farm workers does not exclude many workers from the analysis.<sup>4</sup>

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<sup>4</sup> This is based on the *Occupational Wage Estimates* report prepared by the South Dakota Department of Labor.



**TABLE 1: NUMBER OF WORKERS AT  
DIFFERENT WAGE RATES, 2004**

Wage	Number of Workers	% of Total
\$5.15 or less	30	0.0%
\$5.25 or less	393	0.1%
\$5.35 or less	1,239	0.3%
\$5.45 or less	2,565	0.7%
\$5.55 or less	4,475	1.2%
<b>\$5.65 or less</b>	<b>6,729</b>	<b>1.8%</b>
\$5.75 or less	8,984	2.4%
\$5.85 or less	11,239	3.0%
\$5.95 or less	13,494	3.6%
<b>\$6.00 or less</b>	<b>14,621</b>	<b>3.9%</b>
\$6.05 or less	15,748	4.2%
<b>\$6.15 or less</b>	<b>18,003</b>	<b>4.9%</b>
\$6.25 or less	20,258	5.5%
<b>\$6.35 or less</b>	<b>22,513</b>	<b>6.1%</b>
<b>Total Workers</b>	<b>371,008</b>	<b>100.0%</b>

Source: *Occupational Employment Statistics*, Labor Market Information Center, South Dakota Department of Labor.

The geographic distribution of low-wage workers in South Dakota is presented in Table 2.<sup>5</sup> As shown in Table 2, the greatest concentration of low-wage workers (on a percentage basis) are in McCook and Tripp counties with more than 20 percent of the workers earning \$6.35 per hour or less. Other counties with a high concentration of low-wage workers are Aurora, Fall River, Gregory, Jackson, and Jones counties. Detailed wage data is not available for Buffalo, Campbell, Mellette, Sully or Ziebach counties.

**TABLE 2: LOW-WAGE WORKERS AS PERCENT OF EMPLOYMENT, 2004**

Area Name	Employment	\$5.65 or less	\$6.00 or less	\$6.15 or less	\$6.35 or less
South Dakota Statewide	371,008	1.81%	3.94%	4.85%	6.07%
Rapid City MSA	51,560	2.31%	4.67%	5.67%	7.02%
Sioux Falls MSA	119,106	1.15%	2.54%	3.14%	3.93%
Northeast South Dakota	80,384	2.22%	4.62%	5.65%	7.02%
Southeast South Dakota	58,930	1.81%	4.12%	5.11%	6.44%
West South Dakota	61,028	2.16%	4.99%	6.20%	7.82%
Substate Area Total	371,008	1.81%	3.94%	4.85%	6.07%

<sup>5</sup> The actual number of workers in each wage category is presented in Appendix A.

Aurora County	1,311	3.43%	10.37%	13.42%	17.47%
Beadie County	8,035	2.89%	6.24%	7.67%	9.57%
Bennett County	421	0.71%	1.43%	1.90%	2.38%
Bon Homme County	1,746	1.66%	3.84%	4.75%	6.01%
Brookings County	15,736	2.49%	5.34%	6.56%	8.19%
Brown County	17,811	1.77%	3.88%	4.79%	5.99%
Brule County	1,837	2.56%	6.15%	7.68%	9.74%
Butte County	2,761	2.75%	6.19%	7.68%	9.67%
Charles Mix County	3,329	3.15%	6.55%	7.96%	9.88%
Clark County	659	3.95%	7.89%	9.41%	11.68%
Clay County	4,566	1.51%	3.13%	3.83%	4.75%
Codington County	15,353	1.78%	3.81%	4.68%	5.84%
Corson County	297	1.35%	2.69%	3.37%	4.04%
Custer County	2,002	1.15%	2.80%	3.50%	4.40%
Davison County	10,498	1.68%	3.56%	4.37%	5.45%
Day County	1,898	4.27%	9.17%	11.22%	13.96%
Deuel County	1,697	3.01%	6.01%	7.25%	8.96%
Dewey County	1,877	0.27%	0.64%	0.80%	1.01%
Douglas County	468	1.28%	3.63%	4.70%	5.98%
Edmunds County	436	0.46%	1.15%	1.38%	1.83%
Fall River County	2,044	5.92%	11.99%	14.58%	18.05%
Faulk County	384	1.56%	3.13%	3.65%	4.43%
Grant County	2,933	1.67%	3.44%	4.19%	5.22%
Gregory County	1,370	6.06%	12.85%	15.77%	19.64%
Haakon County	1,829	1.09%	2.35%	2.95%	3.66%
Hamlin County	1,613	3.60%	7.87%	9.73%	12.15%
Hand County	842	2.49%	6.06%	7.60%	9.62%
Hanson County	428	2.34%	6.07%	7.48%	9.58%
Harding County	325	1.85%	3.08%	3.69%	4.62%
Hughes County	8,993	2.65%	5.85%	7.23%	9.06%
Hutchinson County	2,448	3.06%	6.13%	7.43%	9.19%
Hyde County	718	0.14%	0.28%	0.42%	0.56%
Jackson County	344	5.52%	11.05%	13.66%	16.57%
Jerauld County	1,172	0.34%	0.77%	0.94%	1.11%
Jones County	464	2.80%	10.56%	14.01%	18.53%
Kingsbury County	1,335	3.52%	6.89%	8.39%	10.34%
Lake County	4,956	2.10%	4.92%	6.13%	7.75%
Lawrence County	10,343	3.22%	6.81%	8.32%	10.36%
Lincoln County	5,485	0.44%	1.13%	1.42%	1.82%
Lyman County	1,359	1.99%	4.27%	5.30%	6.62%
Mccook County	1,547	7.69%	14.67%	17.58%	21.53%
Mcperson County	270	2.59%	4.44%	5.56%	6.67%
Marshall County	1,291	3.41%	6.51%	7.82%	9.53%
Meade County	4,735	1.20%	2.66%	3.29%	4.12%
Mellette County	213	na	na	na	na
Miner County	633	0.47%	1.74%	2.21%	2.84%
Minnehaha County	113,697	1.12%	2.53%	3.14%	3.95%
Moody County	1,876	1.39%	2.83%	3.41%	4.21%
Pennington County	51,591	2.18%	4.53%	5.54%	6.87%
Perkins County	1,662	1.99%	4.81%	6.02%	7.70%
Potter County	1,155	0.95%	1.82%	2.25%	2.77%
Roberts County	3,853	1.32%	2.85%	3.50%	4.39%
Sanborn County	1,145	0.61%	1.48%	1.83%	2.27%

Shannon County	3,139	0.86%	2.20%	2.77%	3.54%
Spink County	4,264	0.61%	1.36%	1.69%	2.13%
Stanley County	974	2.46%	5.85%	7.29%	9.14%
Sully County	73	na	na	na	Na
Todd County	3,527	2.24%	4.48%	5.44%	6.75%
Tripp County	2,787	6.49%	13.28%	16.18%	20.06%
Turner County	1,140	1.32%	4.47%	5.88%	7.72%
Union County	8,909	0.82%	2.02%	2.55%	3.24%
Walworth County	2,259	2.57%	5.80%	7.22%	9.07%
Yankton County	13,964	1.95%	4.24%	5.22%	6.53%
Ziebach County	4,181	na	na	na	Na
County Totals	371,008	1.81%	3.94%	4.85%	6.07%

Source: Labor Market Information Center, South Dakota Department of Labor.

The distribution of low-wage workers by industry in South Dakota is presented in Table 3.<sup>6</sup> As expected, the industry that had the highest percentage of low-wage workers was the food service and drinking places industry at 33 percent of workers earning \$6.35 per hour or less including tips. Other industries with a high percent of low-wage workers were the leisure and hospitality, food and beverage stores, and accommodation industries. The industries with the lowest percent of low-wage industries were Federal and state government, utilities, and natural resources and mining.

**TABLE 3: LOW-WAGE WORKERS BY INDUSTRY AS PERCENT OF EMPLOYMENT, 2004**

Title	NAICS	Employment	\$5.65 or less	\$6.00 or less	\$6.15 or less	\$6.35 or less
Total	0000	371,008	1.8%	3.9%	4.9%	6.1%
Natural Resources & Mining	1011	1,172	0.1%	0.2%	0.2%	0.3%
Construction	1012	20,789	0.1%	0.3%	0.4%	0.5%
Manufacturing	1013	39,231	0.1%	0.4%	0.5%	0.6%
Durable Goods Manufacturing	0	25,777	0.1%	0.3%	0.4%	0.5%
Non-Durable Goods Manufacturing	0	12,560	0.3%	0.6%	0.7%	0.9%
Trade, Transportation & Utilities	1021	78,404	2.6%	5.6%	6.8%	8.5%
Wholesale Trade	42	17,306	0.6%	1.4%	1.8%	2.2%
Retail Trade	44-45	49,336	4.0%	8.3%	10.1%	12.6%
Motor Vehicle & Parts Dealers	441	6,456	0.4%	0.9%	1.1%	1.5%
Food & Beverage Stores	445	8,606	8.9%	16.9%	20.4%	24.9%
General Merchandise Stores	452	9,320	4.3%	9.0%	11.1%	13.8%
Utilities	221	2,058	0.0%	0.0%	0.0%	0.0%

<sup>6</sup> The actual number is presented in Appendix A.

Transportation & Warehousing	48-49	9,704	0.1%	0.4%	0.5%	0.7%
Information	1022	6,709	1.4%	3.3%	4.2%	5.2%
Financial Activities	1023	27,426	0.2%	0.7%	0.8%	1.1%
Finance & Insurance	52	23,803	0.1%	0.3%	0.4%	0.5%
Real Estate & Rental & Leasing	53	3,623	1.1%	3.1%	4.0%	5.1%
Professional & Business Services	1024	23,874	0.7%	1.5%	1.8%	2.3%
Educational & Health Services	1025	53,048	0.7%	1.5%	1.9%	2.4%
Educational Services	61	3,097	0.4%	0.8%	1.0%	1.3%
Health Care & Social Assistance	62	49,951	0.7%	1.6%	1.9%	2.4%
Ambulatory Health Care Services	621	12,403	0.1%	0.2%	0.3%	0.4%
Hospitals	622	18,342	0.3%	0.5%	0.6%	0.8%
Nursing & Residential Care Facilities	623	12,836	1.1%	2.4%	2.9%	3.7%
Leisure & Hospitality	1026	40,420	8.4%	18.1%	22.3%	27.8%
Arts, Entertainment, & Recreation	71	6,170	5.2%	10.7%	13.1%	16.2%
Accommodation & Food Services	72	34,250	8.9%	19.4%	23.9%	29.9%
Accommodation	721	7,662	6.0%	12.5%	15.3%	19.0%
Food Services & Drinking Places	722	26,588	9.8%	21.4%	26.4%	33.0%
Other Services	1027	10,754	2.2%	5.1%	6.3%	8.0%
Government	1028	69,181	0.4%	0.9%	1.1%	1.4%
Federal Government	0	10,318	0.0%	0.0%	0.0%	0.0%
State Government	0	13,988	0.1%	0.2%	0.2%	0.3%
State Government Education	61	5,512	0.3%	0.5%	0.6%	0.7%
Local Government	0	44,875	0.6%	1.3%	1.6%	2.0%
Local Government Education	61	24,816	0.4%	1.1%	1.3%	1.7%

Source: Labor Market Information Center, South Dakota Department of Labor.

## ECONOMIC THEORY AND THE MINIMUM WAGE

Economic theory provides the intellectual foundation for thinking about wage rates, employment, and the influence of policy in labor markets. Following is a brief summary of some fundamental principles.

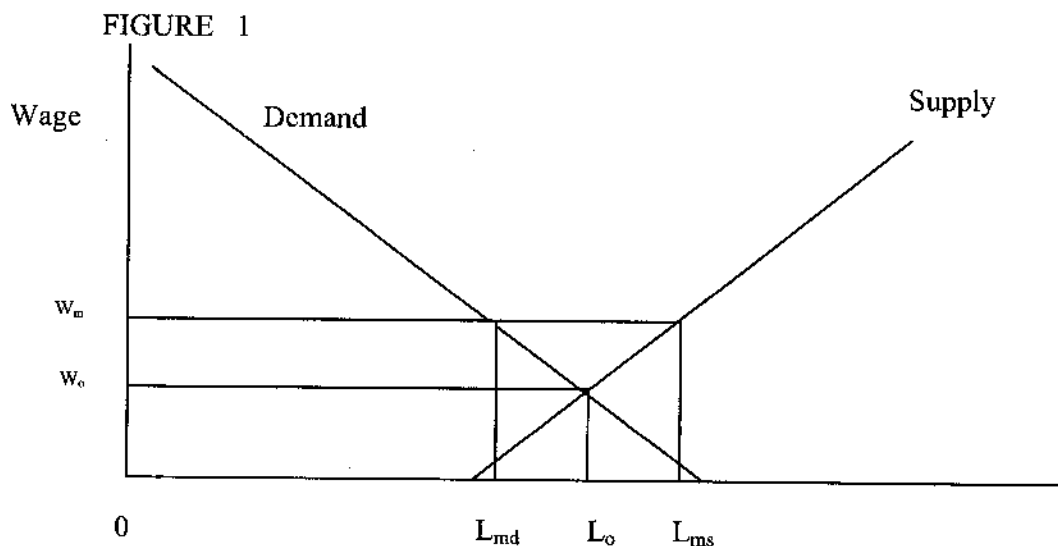
### **I. STANDARD MODEL**

Wage rates are determined by the demand for and the supply of labor in competitive markets. The demand for labor *derives* from the demand for things which labor produces. Firms engage in the production process, hiring labor and other inputs to produce an output that is sold. Describing this process rigorously is essentially a mathematical exercise and it can be shown that

if a firm faces a wage rate determined by the market, then the firm's demand for labor must slope down and to the right. Since the market demand for labor is the sum of the firms' demand for labor; market demand curves necessarily also have a negative slope. This reinforces the common sense notion that people wish to purchase more when the price is low than when price is high.

The supply of labor is derived from the tradeoff between leisure and the reward for giving up leisure, i.e., the wage rate. Theoretical requirements for a stable equilibrium in the labor market are met if a downward sloping demand curve is combined with an upward sloping supply curve. This standard model yields markets that are "well behaved" in the sense that they are stable and usually describe and predict well what the result of various public policies will be.

Figure 1 below illustrates the standard supply-demand model. In the absence of a minimum wage, the equilibrium wage is  $W_o$  and the quantity of labor hired is  $L_o$ . To illustrate how the market comes to this equilibrium, suppose that somehow the initial wage were  $W_m$ . Then the amount of labor demanded falls to  $L_{md}$  while the number of people who wish to work



risks to  $L_{ms}$ . There are now unemployed workers, as the quantity of labor supplied exceeds the quantity of labor demanded by  $L_{ms} - L_{md}$  at price  $W_m$ . The unemployed workers seeking jobs drives the wage back down to  $W_o$ .

If a legal minimum wage is established at  $W_m$ , then the mechanism that would bring the wage back down to  $W_o$  is not permitted to work, and the unemployment described above is permanent. The unemployment described above is usually not estimated because that requires knowledge of the supply curve. The reduction in employment relative to the original equilibrium, usually called "disemployment," is measured instead, and amounts to  $L_o - L_{md}$  in Figure 1.

The imposition of a minimum wage operates as a tax on low skilled labor, and employers of low skilled labor will try to economize on this *now* more expensive resource. They may do this by substituting capital for low skilled workers, or substituting higher skilled workers for lower skilled ones. Or the employer may change the way it compensates workers, increasing the "wage" up to the new minimum but cutting back non-wage benefits. For example, medical or vacation benefits and leave time can be reduced or eliminated. Such things reduce the disemployment effect, but nonetheless represent real costs, some of which are borne by the very people that we wish to help.

It is not easy to identify where the disemployed are in the income distribution. And this can be important. If all the disemployed from an increase in the minimum wage were teenagers who lived in families with high incomes, then the level of concern is probably smaller than if the disemployed are the main breadwinners in families below the poverty level. On a national level, about one third of minimum wage workers are in families who have incomes at least three times

that of the poverty level, and only one third are in families with incomes at or less than 1.5 times the poverty level.<sup>7</sup>

The above principles are derived though partial equilibrium analysis, by which we look only at markets affected directly by an increase in the minimum wage. Clearly, however, when prices and quantities in one market are affected, other markets can be affected too. For example, if firms directly affected by the minimum wage are minimizing cost at each level of output (as are all profit maximizing firms), then the minimum wage necessarily increases the costs of production and upward pressure is exerted on output prices. If output prices on items purchased by the poor increase, the real wage is decreased, mitigating employment effects but reducing the real wage of the low-wage worker and hence also reducing their real income. Further, those whose wages are not increased by the new minimum wage are made worse off by the higher output prices that they now must pay. An expanded standard model uses sophisticated techniques that allow full measurement of such general equilibrium effects, but that is beyond the scope of this paper. Suffice it to say that if supply and demand are "compensated" and properly reflect all other price changes all gains and losses can be measured in a single market<sup>8</sup>.

The minimum wage increase being considered in this study is a statewide minimum wage. A wage increase of such limited geographic area has, in our judgment, few general equilibrium effects of significance. Further, even if employers are able to pass on the increased wage costs, societal costs of the minimum wage do not disappear. They are merely shifted to consumers. Hence, we believe our measure of the costs of the minimum wage is a good approximation even in the presence of general equilibrium effects.

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<sup>7</sup> Burkhauser, Richard, et.al., "Who Gets What From Minimum Wage Hikes: A Re-Estimation of Card and Krueger's Distributional Analysis in Myth and Measurement: The New Economics of the Minimum Wage," *Industrial and Labor Relations Review*, April, 1996, 547-552.

<sup>8</sup> Just, Richard, et. al., *Applied Welfare Economics and Public Policy*, 1982. Prentice Hall, Englewood Cliffs, N.J., esp. Chapter 9 and Appendix D.

In summary, then, standard economic theory predicts that employment is reduced as a result of the minimum wage. Such reduction in employment is the main source of economic costs resulting from increases in the minimum wage.

## **II. Challenges to the Standard Model**

Economists are model builders, and over the last quarter century a host of models, most of which depart only slightly from the standard model, have been developed. Many of these models incorporate such things as search costs and other imperfections disallowed by the conventional model. Most challenges fit under the general rubrics of either the “monopsony” model, or some variant of the “efficiency wage” model. Each is briefly and simply described below.

### ***a. Monopsony***

A challenge to the standard model exists when there is a single buyer of labor. Coal mining towns in West Virginia in the early part of the last century are sometimes held up as an example. The key characteristic of this model is that the buyer affects the wage rate through how much labor he chooses to acquire. In other words, the buyer of labor is no longer a price-taker but has sufficient market power to affect the wage rate paid. The more labor the buyer wishes to have, the higher will be the wage rate the buyer must pay. This model does not deny the downward sloping demand curve for labor or the upward sloping supply, but the presence of a single buyer changes the outcome.

The wage paid in a monopsonistic industry will be below the competitive wage. Further, if a minimum wage just a little higher than the current actual wage is imposed, then the firm will wish to hire more, not less labor. As the legal minimum wage is pushed ever higher, the amount



of labor the firm wishes to hire also increases until the legal minimum reaches what the wage would have been if the market had been competitive. If the minimum wage is pushed above that which would have existed in a free competitive market, then even in the case of a monopsony employment starts to fall.

Monopsony models differ from the competitive model in that there is a range of increases in the legal minimum wage which result in increases, not decreases, in employment. Both the competitive and monopsonistic models agree, however, in predicting that raising the legal minimum wage above competitive levels results in reductions in employment relative to competitive employment levels.

#### ***b. Efficiency Wage Models***

A second challenge to the standard model results from assuming that if a firm pays workers a higher wage than its competitors, then the behavior of the workers is improved and their productivity rises. Workers know they are getting a higher wage than they can get elsewhere, and so they will work hard to maintain their position. The increase in productivity on the part of the worker shifts the demand for labor on the part of the firm to the right, leading to the desire on the part of the firm to hire more labor.

Establishing a legal minimum wage can have similar effects, increasing labor productivity and hence increasing the demand for labor. If this is the case in reality, then increasing the minimum wage may not have the disemployment effects which result from the standard model, and could even result in increased employment.

There have been theoretical objections to this model, however. D. McCloskey, for example, observes that if labor becomes more efficient with a higher wage, then private firms

have every incentive to pay the higher wage without the stimulus of a legal minimum wage. By doing so, the firm would increase its profits above what it would earn if it paid the lower wage.<sup>9</sup>

### **c. Conclusion**

There are legitimate theoretical challenges to the standard model. Choice among these models cannot be made solely, or even primarily, on the basis of theoretical considerations. Only empirical evidence permits rational choice among the various models. An immense amount of empirical work has been done on this issue, and this is described in summary form in our empirical section.

## **EMPIRICAL EVIDENCE ON THE MINIMUM WAGE**

There is a long line of research on the impact of the minimum wage on the employment of low-skilled workers. This research has generally found that an increase in the minimum wage has a small but statistically significant and economically important negative impact on employment. The extent of the adverse employment effect depends on the initial minimum wage relative to the market-clearing wage rate. If the minimum wage is below the equilibrium wage rate for that category of labor it is nonbinding and therefore has no employment effect. If the minimum wage is raised to a level that is above the market-clearing wage rate it is binding and will impact employment. The higher the new minimum wage rate, the greater the negative impact on employment. Obviously, a minimum wage rate of \$10.00 per hour would have a greater negative impact on employment than a minimum wage of \$6.50 per hour.

The groups most impacted by a rise in the minimum wage tend to be the least skilled and least-educated workers. This is the case because the economic value of their work to the

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<sup>9</sup> McCloskey, Donald. 1985. *The Applied Theory of Price*, 2<sup>nd</sup> ed. (McMillan, New York), p. 455.

employer is low so they are in danger of being priced out of the market by high minimum wages. Teenagers who tend to have low skills, little work experience, and limited education, tend to be the most affected by a rise in the minimum wage rate. Young minorities and non-high school graduates bear the brunt of job loss from increases in the minimum wage rate.

Until the 1990s, there was a strong consensus among economists that a high minimum wage had an adverse impact on employment.<sup>10</sup> Consensus estimates place the wage elasticity of demand in a range of -0.1 to -0.3.<sup>11</sup> This means a 10 percent increase in the minimum wage rate would reduce employment between one and three percent. However, in 1992 a series of articles were published by Card<sup>12</sup>, Card and Krueger<sup>13</sup>, and Card, Katz and Krueger<sup>14</sup> that fundamentally challenged the conventional view of the impact of the minimum wage on employment. It was argued that a minimum wage increase had an insignificant or even a positive effect on employment. Their model was based on a simple monopsony model where they assume that, in contrast to the competitive model, that employers have some discretion over the wages that they pay. These conclusions by Card *et al* led to a large volume of research challenging the no-impact conclusion.

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<sup>10</sup> Brown, Charles, Curtis Gilroy, and Andrew Kohen, "The Effect of the Minimum Wage on Employment and Unemployment," *Journal of Economic Literature*, June 1982. ; Victor R. Fuchs, Alan B. Krueger, and James M. Poterba, "Economists' Views About Parameters, Values and Policies: Survey Results in Labor and Public Economics," *Journal of Economic Literature*, September 1998.

<sup>11</sup> Brown, Charles, "Minimum Wages: Are They Overrated?" *Journal of Economic Perspectives*, 1988.

<sup>12</sup> Card, David. "Using Regional Variation in Wages to Measure the Effects of the Federal Minimum Wage," *Industrial and Labor Relations Review*, 1992, 22-37; Card, David, "Do Minimum Wages Increase Unemployment? A Case of California 1987-1989," *Industrial Relations Review*, 1992, 38-58.

<sup>13</sup> Card, David and Alan B. Krueger. *Myth and Measurement: The New Economics of the Minimum Wage*. Princeton, NJ: Princeton University Press, 1995.

<sup>14</sup> Card, David, Lawrence F. Katz, and Alan B. Krueger. "Comment on David Neumark and William Wascher, "Employment Effects of Minimum and Subminimum Wages: Panel Data on State Minimum Wage Laws,"" *Industrial Relations Review*, 1994, 487-96.

In a 1998 article, published in the *Journal of Economic Literature* by Fuchs, Krueger, and Poterba,<sup>15</sup> a survey of labor and public finance economists at universities at the top-40 economics departments was taken concerning the consensus estimates of economic parameters. On a question concerning the impact of a 10 percent increase in the minimum wage on teenage employment the median response was a one percent decline in teenage employment, while the mean response was a 2.1 percent decline. More recent research has continued to support the view that an increase in the minimum wage has a modest but statistically significant negative effect on employment. While debates like these may never be totally settled to everyone's satisfaction the subsequent research has arrived at a near-consensus conclusion that minimum wage increases do have a small but significant negative and economically important effect on employment.<sup>16</sup>

After a careful review of this literature, this study concludes that the weight of evidence favors the proposition that an increase in the minimum wage will have a negative impact on employment. It seems inappropriate to ignore the large volume of peer-reviewed research that preceded and followed the Card *et al* studies that demonstrated a negative relationship between

<sup>15</sup> Victor R. Fuchs, Alan B. Krueger, and James M. Poterba, "Economists' Views About Parameters, Values and Policies: Survey Results in Labor and Public Economics," *Journal of Economic Literature*, September 1998.

<sup>16</sup> Deere, Donald, Kevin M. Murphy, and Finis Welch. "Reexamining Methods of Estimating Minimum Wage Effects: Employment and the 1990-1991 Minimum Wage Hike," *American Economic Association Papers and Proceedings*, May, 1995, 232-237; Abowd, John, Francis Kramarz, Thomas Lemieux, and David Margolis. "Minimum Wage and Youth Employment in France and the United States." In David G. Blanchflower and Richard Freeman (eds.) *Youth Employment and Unemployment in Advanced Countries*. Chicago: University of Chicago Press, 2000; Burkhauser, Richard V., Kenneth A. Couch, and David C. Wittenberg. "Who Minimum Wage Increases Bite: An Analysis Using Monthly Data from the SIPP and CPS," *Southern Economic Journal*, 2000, 16-40; Burkhauser, Richard V., Kenneth A. Couch, and David C. Wittenberg. "A Reassessment of the New Economics of the Minimum Wage Literature with Monthly Data for the Current Population Survey," *Journal of Labor Economics*, October, 2000; Neumark, David and William Wascher. "Employment Effects of Minimum and Subminimum Wages: Reply to Card, Katz, and Krueger." *Industrial Relations Review*, 1994, 497-512; Neumark, David and William Wascher. "Minimum Wage and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania: Comment," *American Economic Review*, 2000, 1362-96. Neumark, David and William Wascher. "Using the EITC to Help Poor Families: New Evidence and a Comparison with the Minimum Wage," *National Tax Journal*, 2001, 281-317; Aaronson, Daniel, and Eric French. "Product Market Evidence on the Employment Effects of the Minimum Wage," working paper, Federal Reserve Bank of Chicago, 2003; Neumark, David and William Wascher. "Minimum Wage, Labor Market Institutions, and Youth Employment: A Cross-Sectional Analysis," *Industrial and Labor Relations*, 2004, 223-248.

an increase in the minimum wage and employment. Furthermore, since their model relies on a monopsony model it does not deny the existence of a down-sloping demand curve. For purposes of our calculations, it is assumed that a ten percent increase in the minimum wage rate will reduce employment by two percent or an elasticity of -0.2. This is midway between what is often considered the consensus impact of one to three percent.

## **THE WELFARE ECONOMICS OF THE MINIMUM WAGE**

### **I. THE WELFARE ECONOMICS MODEL**

Empirical evidence as described in a previous section supports the proposition that increasing the minimum wage will reduce employment. Of course, for this to occur the minimum wage must be binding, i.e., must be above wage rates that are currently being paid. This section lays out the principles that facilitate the measurement of the benefits and costs of the minimum wage to various segments of society.

However, before we illustrate the benefits and costs using the more formal graphical analysis we will discuss the benefits and costs of an increase in the minimum wage in plain words.

1. The workers who experience an increased wage as a result of the new minimum wage are better off than before. They benefit by the difference between the new minimum wage and their old lower wage rate.
2. The employers who pay these workers the new higher wage bear the cost. These employers are worse off as a result of the increase in the minimum wage. At this

point, the gain by the workers is just equal to the loss to the employers. This is what is known as a zero-sum game.

3. Because the higher minimum wage will have some disemployment impacts, workers who lose jobs as a result of the new minimum wage rate are worse off. This is loss for which there is no offsetting gain.
4. The employers who would have profited by the employment of the now disemployed are worse off. Again, this is a loss for which there is no offsetting gain.
5. The losses to the workers and employers described in points 3 and 4 above are losses that are not offset by gains to anyone. These losses are what economists call a dead-weight loss or welfare loss to society. It is because of this loss, that an increase in the minimum wage imposes net costs on society. To repeat, the basic reason why there is a deadweight loss to society is the disemployment resulting from a higher minimum wage.
6. Depending on the competitive environment in output markets, firms that must pay higher wages because of the increase in the minimum wage may try to raise their prices as an effort to pass along their higher costs. If markets are competitive and there are some firms in the same industry that are not directly affected by the minimum wage increase, then the firms that are directly affected will have trouble raising prices.<sup>17</sup> In our analysis, it is assumed that competition prevents firms from passing their higher costs onto the consumer.

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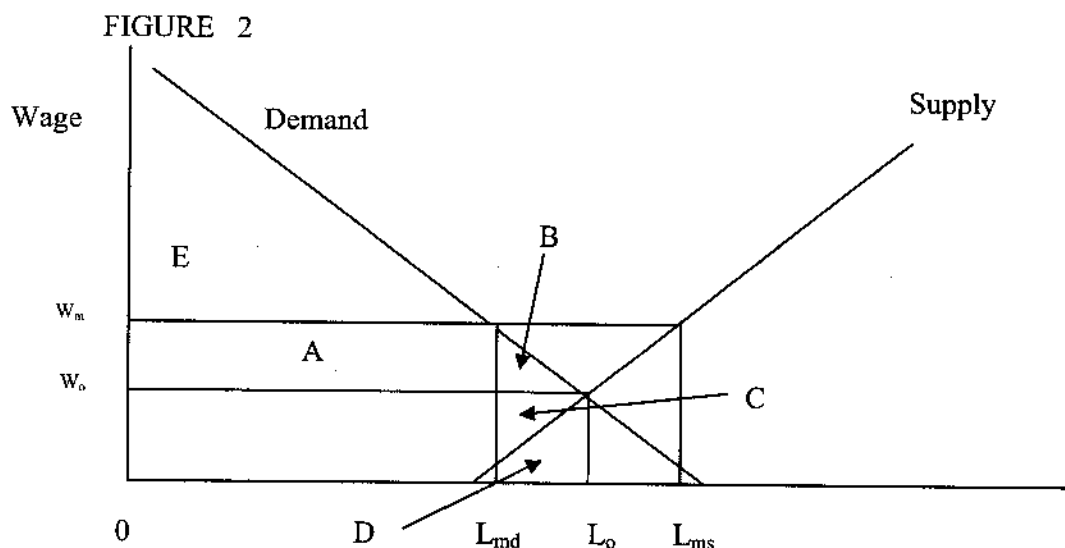
<sup>17</sup> An example might be a chain fast food operation that uses the latest technology and capital which hires medium-wage workers competing with a mom-and-pop fast food operation using less sophisticated technology and capital which uses low-wage workers. An increase in the minimum wage may not affect the chain fast food operation because they pay workers above the new minimum wage while it could affect the mom-and-pop operation.

If all the competitors were equally affected by the minimum wage increase we would expect prices to rise in that industry. However, this would leave the consumer with less money to spend on other items which would reduce employment in these industries. Therefore, the impact on employment is similar whether it is specific to a small number of industries that employ more low-wage workers or more evenly spread across the economy.

Moving to a more formal analysis of the measurement of benefits and costs of increasing the minimum wage in South Dakota, we turn to Figure 2, which illustrates supply and demand curves for labor of a given skill level. As the wage rate declines firms wish to hire more laborers, and fewer laborers wish to work. An equilibrium exists at wage rate  $W_o$ , where the quantity of labor hired is  $L_o$ . Employers and employees have all struck mutually acceptable bargains, and all those who wish to work at that wage rate are working,<sup>18</sup> and all the firms' are hiring the quantity of labor they wish.

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<sup>18</sup> There are some normal frictions, e.g., it takes time to find a new job after leaving an old one, that prevent a "frictionless" equilibrium like that depicted above from always existing. The graph is a reasonable approximation.



If government imposes a legal minimum on wages, e.g., at  $W_m$ , then the number of workers hired falls to  $L_{md}$  and the number of workers who wish to work rises to  $L_{ms}$ . The labeled areas in Figure 2 are helpful in identifying the gains and losses. Those workers who stay employed receive the higher wage, and their wage earnings are now higher by area A. This gain has come at a cost to others, however. Employers, who formerly received areas  $A + B + E$  as a return to all non-labor factors of production, now receive only area E, a cost to employers equal to the sum of areas A and B. Further, there has been a reduction of total employment by  $L_o - L_{md}$ , and this disemployed labor is worse off by area C as the result of not being able to find work. Area D represents the value of leisure to these unemployed workers. If leisure is not valued, area D goes to zero.

The total gains are thus equal to area A, and the losses are area  $A + B + C$ . The losses are larger than the gains, so economists say there is an economic welfare cost or a dead-weight loss to the minimum wage of magnitude  $B + C$ . This economic loss is a measure of the reduction in Gross State Product as a result of increasing the minimum wage.



The magnitude of the gains and losses depends upon the slopes of the demand and supply curves. If the demand curve were vertical, then the net losses disappear. Also, there are no net economic societal gains, as the gain to one group is entirely offset by the loss to another – the distribution of income has merely been rearranged with no increase or decrease in the aggregate magnitude of that income.

## **II. THE EMPIRICAL RESULTS**

In determining the benefits and costs of an increase in the minimum wage we analyze four cases:

1. the minimum wage is increased from \$5.15 to \$5.65,
2. the minimum wage is increased from \$5.15 to \$6.00,
3. the minimum wage is increased from \$5.15 to \$6.15,
4. the minimum wage is increased from \$5.15 to \$6.35.

The data are those earlier described, and the assumptions used are:

1. elasticity of demand for labor is -0.20,
2. workers work 35 hours/week on average,
3. workers work fifty weeks per year on average,
4. on average the value of leisure for disemployed workers is zero.

The elasticity assumption of -0.2 is the mid-point of the consensus elasticity estimates of -0.1 to -0.3. We assign a value of zero to leisure time gained by the disemployed because current antipoverty policy is oriented toward getting people into, not out of, the workplace. Minimum wage jobs often provide a point of entry into the workplace, good work habits are learned, skills are gained, and people move on to higher paying jobs.

Table 4 below summarizes the effects of increasing the minimum wage in South Dakota. First, we look at the employment effects. If the minimum wage is increased from \$5.15 to \$5.65, only the very low-wage earners are affected and the disemployment magnitude is correspondingly low, amounting to only about 32 workers. Those low-wage workers who *stay employed* increase their earnings by over \$1.509 million. This increase in earnings is more than offset by the losses of the disemployed, which amounts to \$304 thousand, and the losses of the employer, who experiences increased costs of \$1.515 million. Low-wage workers, taken as a group, increase their labor earnings by \$1.204 million (\$1.509 million - \$304 thousand). The deadweight loss, i.e., that loss not offset by gains elsewhere, is a little over \$0.3 million. Also, every dollar gained by an increase in the minimum wage is paid for by \$1.21 that is lost.

At the other extreme, if the minimum wage is increased from \$5.15 to \$6.35, disemployment is 365 workers. Those workers who stay employed gain \$17.7 million, but this is more than offset by the sum of losses to the disemployed of over \$3.6 million, and the losses to the employers of \$17.938 million. The low-wage workers as a whole gain \$14.094 million (\$17.7 million - \$3.6 million). The deadweight is approximately \$3.8 million. Again every dollar gained by an increase in the minimum wage to \$6.35 is paid for by \$1.22 in cost to others.

**TABLE 4: IMPACTS OF INCREASING THE MINIMUM WAGE IN SOUTH DAKOTA**

Impacts of Increasing the Minimum Wage in South Dakota				
	Increasing the Minimum Wage from \$5.15 to:			
	\$5.65	\$6.00	\$6.15	\$6.35
Effect				
Disemployment	32	153	233	365
Increase in Earnings of Employed LWW*	\$1,508,876	\$7,302,504	\$11,237,075	\$17,724,963
Disemployed Lost Earnings	\$304,570	\$1,484,035	\$2,291,135	\$3,630,340
Total Change Earnings: LWW	\$1,204,306	\$5,818,469	\$8,945,940	\$14,094,623

Employer Losses (Increased costs)	\$1,515,863	\$7,361,340	\$11,346,375	\$17,938,332
Net Loss (Deadweight Loss)	\$311,557	\$1,542,870	\$2,400,435	\$3,843,708
Loss per Dollar Gained	\$1.21	\$1.21	\$1.21	\$1.22
* Low-Wage Worker				

### **SUMMARY AND CONCLUSIONS**

This study has examined the impact of raising the minimum wage rate in South Dakota. An analysis was conducted for four different scenarios regarding the minimum wage rate. It was assumed that the minimum wage rate was increased from its present \$5.15 per hour to \$5.65, \$6.00, \$6.15, and \$6.35 per hour. Analysis of employment data indicated that in 2004 the number of affected workers by wage rate (including tips) is:

- 6,729 workers earn \$5.65 per hour or less,
- 14,621 workers earn \$6.00 per hour or less,
- 18,003 workers earn \$6.15 per hour or less,
- 22,513 workers earn \$6.35 per hour or less.

The counties with the highest percentage of low-wage workers were Gregory, McCook, and Tripp counties with more than 20 percent of wage and salary workers earning \$6.35 or less per hour. The industries with the highest percentage of low-wage workers were food service and drinking places, leisure and hospitality, accommodation, and food and beverage stores.

Based on standard economic theory, the analysis determined the impact in terms of the benefits and costs of an increase in the minimum wage rate. The benefits of an increase in the minimum wage are experienced by low-wage workers who realize an increase in wages. Employers who must pay higher wages realize a loss. The gains and losses at this point are offsetting. However, this does not take into account job losses.

Economic theory indicates that as the minimum wage rate is increased some workers will lose their jobs. The higher the minimum wage rate the greater the job loss. Using a consensus elasticity estimate of -0.2, where a 10 percent increase in the minimum wage will reduce employment by 2 percent, we estimated the "disemployment" impact of an increase in the minimum wage rate. The analysis indicates a job loss of 32 workers if the minimum wage rate is raised to \$5.65 per hour. If the minimum wage rate is increased to \$6.00 per hour the job loss is estimated to be 153 workers. If the minimum wage rate is raised to \$6.15 per hour the job loss is estimated at 233 workers and at a minimum wage of \$6.35 per hour the loss is estimated at 365 workers. These job losses represent a loss to both the workers who now do not have a jobs and to the employers who would have profitably employed these out-of-work workers. These losses represent a net loss to society because they represent losses for which there is no offsetting gain. Fewer people are employed and contributing to the economy than before the minimum wage increase.

As shown in the Table below, the job losses depend on the level of the minimum wage rate and range from 32 to 365 jobs lost. The benefits to the low-wage workers who realize a pay raise range from \$1.51 million for a minimum wage increase from \$5.15 per hour to \$5.65 per hour to \$17.72 million for an increase to \$6.35 per hour. The lost wages for the low-wage workers who lose their jobs range from \$0.30 million to \$3.63 million. The employer losses

range from \$1.52 million to \$17.94 million. The employer losses exceed the low-wage worker gains because the employer loss includes the higher wages paid to employed workers plus the lost profits from employing fewer workers. Finally, the net loss, or what economists call deadweight loss, ranges from \$0.31 million for the minimum wage increase to \$5.65 per hour to \$3.84 million for a minimum wage increase to \$6.35 per hour. This net loss occurs because of the disemployment effects of the minimum wage increase. As further indicated, the loss is about \$1.21 per dollar gained. What this indicates is that increases in the minimum wage are an inefficient way of assisting low-wage workers.

Impacts of Increasing the Minimum Wage in South Dakota				
	Increasing the Minimum Wage from \$5.15 to:			
	\$5.65	\$6.00	\$6.15	\$6.35
Effect				
Disemployment	32	153	233	365
Increase in Earnings of Employed LWW*	\$1.51 mil	\$7.30 mil	\$11.24 mil	\$17.72 mil
Disemployed Lost Earnings	\$0.30 mil	\$1.48 mil	\$2.29 mil.	\$3.63 mil
Total Change Earnings: LWW	\$1.20 mil	\$5.82 mil	\$8.95 mil	\$14.10 mil
Employer Losses	\$1.52 mil	\$7.36 mil	\$11.35 mil	\$17.94 mil
Net Loss (Deadweight Loss)	\$0.31 mil	\$1.54 mil	\$2.40 mil	\$3.84 mil
Loss per Dollar Gained	\$1.21	\$1.21	\$1.21	\$1.22
*Low-Wage Worker				

So what are we to conclude from this analysis? We will try to answer this question by posing a series of questions and answers based on our study.

**Question:** Does an increase in the minimum wage benefit low-wage workers?

**Answer:** Yes, it raises the income for many low-wage workers.

**Question:** Do some workers lose as result of an increase in the minimum wage?

**Answer:** Yes, the workers who find themselves without a job are losers.

**Question:** Do some employers lose as result of the minimum wage increase?

**Answer:** Yes, those employers who have to pay higher wages to the workers who retain their jobs.

**Question:** Do some employers lose as result of employing fewer workers than before the increase?

**Answer:** Yes, those employers who lose profits from employing fewer workers due to the higher wage.

**Question:** Overall, are workers better off as a result of the minimum wage increase?

**Answer:** Yes, the gains in income from the workers who retain their jobs are greater than the losses suffered by workers who lost their jobs.

**Question:** Overall, are employers better off as a result of the minimum wage increase?

**Answer:** No, they must pay higher wages than before and lose the profits they would have earned on the marginal workers who are now unemployed.

**Question:** Is society better off as a result of a higher minimum wage?

**Answer:** No, society is worse off if the well being of society is measured by society's income. Increasing the minimum wage reduces total societal income as a result of the job losses suffered by some workers and the lost profits to employers who would have profitably employed them.

Finally, it should be noted that if the minimum wage is set in nominal terms, over time, inflation reduces the real minimum wage. For instance, the minimum wage was set at \$5.15 per hour in 1997 and not changed since. Between 1997 and 2005, prices have increased by 22 percent. This reduces the real minimum wage to \$4.22 in 1997 purchasing power.

This study has attempted to provide policymakers with useful information that will assist them in evaluating a proposal to raise the minimum wage. We do not, however, make the policy

choice. We have provided estimates of the benefits and costs that result from different levels of the minimum wage. Obviously, the choice is left to people elected to make these choices.

## APPENDIX A

**TABLE 1A: NUMBER OF LOW-WAGE WORKERS BY COUNTY, 2004**

Area Name	Employment	\$5.65 or less	\$6.00 or less	\$6.15 or less	\$6.35 or less
South Dakota Statewide	371,008	6,729	14,621	18,003	22,513
Rapid City MSA	51,560	1,191	2,406	2,925	3,617
Sioux Falls MSA	119,106	1,366	3,025	3,736	4,685
Northeast South Dakota	80,384	1,788	3,717	4,544	5,645
Southeast South Dakota	58,930	1,066	2,429	3,013	3,793
West South Dakota	61,028	1,318	3,044	3,785	4,773
Substate Area Total	371,008	6,729	14,621	18,003	22,513
Variance to State	0	0	0	0	0
Aurora County	1,311	45	136	176	229
Beadle County	8,035	232	501	616	769
Bennett County	421	3	6	8	10
Bon Homme County	1,746	29	67	83	105
Brookings County	15,736	392	840	1,033	1,289
Brown County	17,811	316	691	853	1,067
Brule County	1,837	47	113	141	179
Butte County	2,761	76	171	212	267
Charles Mix County	3,329	105	218	265	329
Clark County	659	26	52	62	77
Clay County	4,566	69	143	175	217
Codington County	15,353	273	585	718	896
Corson County	297	4	8	10	12
Custer County	2,002	23	56	70	88
Davison County	10,498	176	374	459	572
Day County	1,898	81	174	213	265
Deuel County	1,697	51	102	123	152
Dewey County	1,877	5	12	15	19
Douglas County	468	6	17	22	28
Edmunds County	436	2	5	6	8
Fall River County	2,044	121	245	298	369
Faulk County	384	6	12	14	17
Grant County	2,933	49	101	123	153
Gregory County	1,370	83	176	216	269
Haakon County	1,829	20	43	54	67
Hamlin County	1,613	58	127	157	196
Hand County	842	21	51	64	81
Hanson County	428	10	26	32	41
Harding County	325	6	10	12	15
Hughes County	8,993	238	526	650	815
Hutchinson County	2,448	75	150	182	225
Hyde County	718	1	2	3	4
Jackson County	344	19	38	47	57
Jerauld County	1,172	4	9	11	13
Jones County	464	13	49	65	86
Kingsbury County	1,335	47	92	112	138



Lake County	4,956	104	244	304	384
Lawrence County	10,343	333	704	861	1,072
Lincoln County	5,485	24	62	78	100
Lyman County	1,359	27	58	72	90
McCook County	1,547	119	227	272	333
McPherson County	270	7	12	15	18
Marshall County	1,291	44	84	101	123
Meade County	4,735	57	126	156	195
Mellette County	213	0	0	0	0
Miner County	633	3	11	14	18
Minnehaha County	113,697	1,269	2,879	3,569	4,495
Moody County	1,876	26	53	64	79
Pennington County	51,591	1,127	2,339	2,856	3,545
Perkins County	1,662	33	80	100	128
Potter County	1,155	11	21	26	32
Roberts County	3,853	51	110	135	169
Sanborn County	1,145	7	17	21	26
Shannon County	3,139	27	69	87	111
Spink County	4,264	26	58	72	91
Stanley County	974	24	57	71	89
Sully County	73	0	0	0	0
Todd County	3,527	79	158	192	238
Tripp County	2,787	181	370	451	559
Turner County	1,140	15	51	67	88
Union County	8,909	73	180	227	289
Walworth County	2,259	58	131	163	205
Yankton County	13,984	272	592	729	912
Ziebach County	4,181	0	0	0	0
County Totals	371,008	6,729	14,621	18,003	22,513

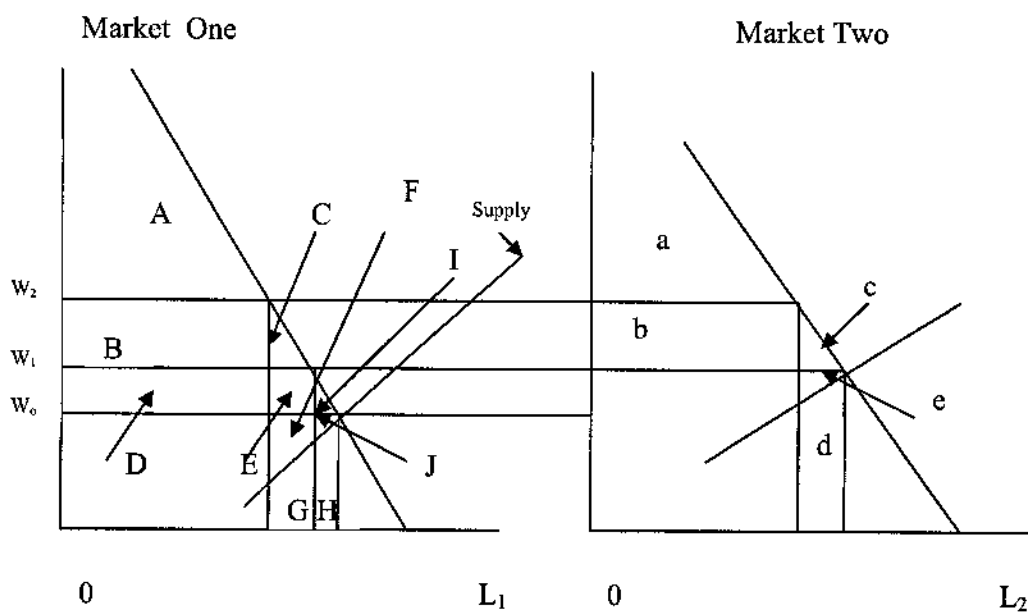
**Source: Labor Market Information Center, South Dakota Department of Labor.**

**TABLE 2A: NUMBER OF LOW-WAGE WORKERS BY INDUSTRY IN SOUTH DAKOTA, 2004**

Title	NAICS	Emp	\$5.65 or less	\$6.00 or less	\$6.15 or less	\$6.35 or less
Total	0000	371,008	6,729	14,621	18,003	22,513
Natural Resources & Mining	1011	1,172	1	2	2	3
Construction	1012	20,789	15	61	81	108
Manufacturing	1013	39,231	58	147	186	237
Durable Goods Manufacturing		25,777	31	81	102	131
Non-Durable Goods Manufacturing		12,560	37	76	93	115
Trade, Transportation & Utilities	1021	78,404	2,077	4,366	5,347	6,654
Wholesale Trade	42	17,306	108	245	303	382
Retail Trade	44-45	49,336	1,955	4,080	4,991	6,204
Motor Vehicle & Parts Dealers	441	6,456	25	59	74	94
Food & Beverage Stores	445	8,606	769	1,457	1,752	2,146
General Merchandise Stores	452	9,320	400	842	1,032	1,285
Utilities	221	2,058	0	1	1	1
Transportation & Warehousing	48-49	9,704	14	40	52	67
Information	1022	6,709	96	224	279	352
Financial Activities	1023	27,426	63	182	233	300
Finance & Insurance	52	23,803	22	68	88	115
Real Estate & Rental & Leasing	53	3,623	41	114	145	185
Professional & Business Services	1024	23,874	169	357	438	545
Educational & Health Services	1025	53,048	362	810	1,002	1,259
Educational Services	61	3,097	11	25	31	39
Health Care & Social Assistance	62	49,951	351	785	971	1,220
Ambulatory Health Care Services	621	12,403	14	29	36	44
Hospitals	622	18,342	46	94	115	142
Nursing & Residential Care Facilities	623	12,836	145	307	376	469
Leisure & Hospitality	1026	40,420	3,379	7,311	8,994	11,241
Arts, Entertainment, & Recreation	71	6,170	321	662	806	1,001
Accommodation & Food Services	72	34,250	3,058	6,649	8,188	10,240
Accommodation	721	7,662	458	958	1,171	1,456
Food Services & Drinking Places	722	26,588	2,600	5,691	7,017	8,784
Other Services	1027	10,754	234	545	678	856
Government	1028	69,181	275	616	763	958
Federal Government		10,318	0	0	0	0
State Government		13,988	16	28	33	40
State Government Education	61	5,512	16	28	33	40
Local Government		44,875	259	588	730	918
Local Government Education	61	24,816	107	261	327	414

Source: Labor Market Information Center, South Dakota Department of Labor

## APPENDIX B



Let wage  $w_0$  in Market One be \$5.15 and the wage rate in Market Two be \$5.25. Assume the minimum wage rate is increased from \$5.15 to \$5.25 =  $w_1$ . Only workers in Market One are affected. Losses to disemployed workers in Market One are areas H + J (if leisure is not valued). The gain to workers in Market One who keep their jobs is D + E. The losses to employers is area D + E + I. Net welfare loss, or the deadweight loss is H + J + I.

Now suppose the minimum wage were increased from \$5.15 to \$5.35 =  $w_2$ . Now workers in both Market One and Market Two are affected. In Market One the gain to workers who stay employed is now B + D. The loss to employers is B + D + C + E + I, and the loss to the disemployed is F + G + H + J. The dead weight loss to society in Market One is G + H + F + J + E + I + C. In Market Two the gain to workers who stay employed is area b. The loss to

employers is  $b + c$ . The loss to the unemployed is  $e + d$ , and the deadweight loss is  $c + d + e$ .

The net loss to society as a whole from raising the minimum wage to  $W_2$  is the sum of the areas described in the two markets. This amounts to  $c + d + e + G + H + F + J + E + I + C$ .

		\$5.65		\$6.00		\$6.15		\$6.35	
Statewide		Minimum Wage Gain	Job Loss prorated	Minimum Wage Gain	Job Loss prorated	Minimum Wage Gain	Job Loss prorated	Minimum Wage Gain	Job Loss prorated
Job Losses			32		153		233		365
Title	Emp	5.65 or less		6.00 or less		6.15 or less		6.35 or less	
Total	371,008	6,729		14,621		18,003		22,513	
By Category:									
Natural Resources & Mining	1,172	1	0.00	2	0.02	2	0.03	3	0.05
Construction	20,789	15	0.07	61	0.64	81	1.05	108	1.75
Manufacturing	39,231	58	0.28	147	1.54	186	2.41	237	3.84
Durable Goods Manufacturing	25,777	31	0.15	81	0.85	102	1.32	131	2.12
Non-Durable Goods Manufacturing	12,560	37	0.18	76	0.80	93	1.20	115	1.86
Trade, Transportation & Utilities	78,404	2,077	9.88	4,366	45.69	5,347	69.20	6,654	107.88
Wholesale Trade	17,306	108	0.51	245	2.56	303	3.92	382	6.19
Retail Trade	49,336	1,955	9.30	4,080	42.69	4,991	64.59	6,204	100.58
Motor Vehicle & Parts Dealers	6,456	25	0.12	59	0.62	74	0.96	94	1.52
Food & Beverage Stores	8,606	769	3.66	1,457	15.25	1,752	22.67	2,146	34.79
General Merchandise Stores	9,320	400	1.90	842	8.81	1,032	13.36	1,285	20.83
Utilities	2,058	0	0.00	1	0.01	1	0.01	1	0.02
Transportation & Warehousing	9,704	14	0.07	40	0.42	52	0.67	67	1.09
Information	6,709	96	0.46	224	2.34	279	3.61	352	5.71
Financial Activities	27,426	63	0.30	182	1.90	233	3.02	300	4.86
Finance & Insurance	23,803	22	0.10	68	0.71	88	1.14	115	1.86
Real Estate & Rental & Leasing	3,623	41	0.19	114	1.19	145	1.88	185	3.00
Professional & Business Services	23,874	169	0.80	357	3.74	438	5.67	545	8.84
Educational & Health Services	53,048	362	1.72	810	8.48	1,002	12.97	1,259	20.41
Educational Services	3,097	11	0.05	25	0.26	31	0.40	39	0.63
Health Care & Social Assistance	49,951	351	1.67	785	8.21	971	12.57	1,220	19.78
Ambulatory Health Care Services	12,403	14	0.07	29	0.30	36	0.47	44	0.71
Hospitals	18,342	46	0.22	94	0.98	115	1.49	142	2.30
Nursing & Residential Care Facilities	12,836	145	0.69	307	3.21	376	4.87	469	7.60
Leisure & Hospitality	40,420	3,379	16.07	7,311	76.51	8,994	116.40	11,241	182.25
Arts, Entertainment, & Recreation	6,170	321	1.53	662	6.93	806	10.43	1,001	16.23
Accommodation & Food Services	34,250	3,058	14.54	6,649	69.58	8,188	105.97	10,240	166.02
Accommodation	7,662	458	2.18	958	10.02	1,171	15.16	1,456	23.61
Food Services & Drinking Places	26,588	2,600	12.36	5,691	59.55	7,017	90.82	8,784	142.41
Other Services	10,754	234	1.11	545	5.70	678	8.77	856	13.88
Government	69,181	275	1.31	616	6.45	763	9.87	958	15.53
Federal Government	10,318	0	0.00	0	0.00	0	0.00	0	0.00
State Government	13,988	16	0.08	28	0.29	33	0.43	40	0.65
Local Government	5,512	16	0.08	28	0.29	33	0.43	40	0.65
Local Government Education	44,875	259	1.23	588	6.15	730	9.45	918	14.88
Local Government Education	24,816	107	0.51	261	2.73	327	4.23	414	6.71
Total			32		153		233		365

Occupational Employment Statistics (OES)  
 South Dakota Occupational Worker and Wage Estimates  
 Source: South Dakota Department of Labor, Labor Market Information Center

		\$5.65		\$6.00		\$6.15		\$6.35	
		Minimum Wage Gain	Job Loss prorated	Minimum Wage Gain	Job Loss prorated	Minimum Wage Gain	Job Loss prorated	Minimum Wage Gain	Job Loss prorated
Job Losses			32		153		233		365
Area Name	Emp	5.65 or less		6.00 or less		6.15 or less		6.35 or less	
South Dakota Statewide	371,008	6,729	32.00	14,621	153.00	18,003	233.00	22,513	365.00
Rapid City MSA	51,560	1,101	5.88	2,406	25.18	2,925	37.88	3,617	58.64
Sioux Falls MSA	119,106	1,366	6.50	3,025	31.65	3,736	48.35	4,685	75.96
Northeast South Dakota	80,384	1,788	8.50	3,717	38.90	4,544	58.81	5,645	91.52
Southeast South Dakota	58,930	1,066	5.07	2,429	25.42	3,013	39.00	3,793	61.50
West South Dakota	61,028	1,318	6.27	3,044	31.85	3,785	48.99	4,773	77.38
Substate Area Total	371,008	6,729	32.00	14,621	153.00	18,003	233.00	22,513	365.00

		Minimum Wage Gain	Job Loss prorated	Minimum Wage Gain	Job Loss prorated	Minimum Wage Gain	Job Loss prorated	Minimum Wage Gain	Job Loss prorated
Aurora County	1,311	45	0.21	136	1.42	176	2.28	229	3.71
Beadle County	8,035	232	1.10	501	5.24	616	7.97	769	12.47
Bennett County	421	3	0.01	8	0.06	8	0.10	10	0.16
Bon Homme County	1,746	29	0.14	67	0.70	83	1.07	105	1.70
Brookings County	15,736	392	1.86	840	8.79	1,033	13.37	1,289	20.90
Brown County	17,811	316	1.50	691	7.23	853	11.04	1,067	17.30
Brule County	1,837	47	0.22	113	1.18	141	1.82	179	2.90
Butte County	2,781	78	0.36	171	1.79	212	2.74	267	4.33
Charles Mix County	3,329	105	0.50	218	2.28	265	3.43	328	5.33
Clark County	659	26	0.12	52	0.54	62	0.80	77	1.25
Clay County	4,568	69	0.33	143	1.60	175	2.26	217	3.52
Codington County	15,353	273	1.30	585	6.12	718	9.29	896	14.53
Corson County	297	4	0.02	8	0.08	10	0.13	12	0.19
Custer County	2,002	23	0.11	56	0.59	70	0.91	88	1.43
Davison County	10,498	176	0.84	374	3.91	459	6.94	572	9.27
Day County	1,898	81	0.39	174	1.82	213	2.76	265	4.30
Deuel County	1,697	51	0.24	102	1.07	123	1.59	152	2.46
Dewey County	1,877	5	0.02	12	0.13	15	0.19	19	0.31
Douglas County	468	6	0.03	17	0.18	22	0.28	28	0.45
Edmunds County	438	2	0.01	5	0.05	6	0.09	8	0.13
Fall River County	2,044	121	0.58	245	2.56	298	3.86	369	5.98
Faulk County	384	6	0.03	12	0.13	14	0.18	17	0.28
Grant County	2,933	49	0.23	101	1.06	123	1.59	153	2.48
Gregory County	1,370	83	0.39	176	1.84	216	2.80	269	4.36
Haakon County	1,829	20	0.10	43	0.45	54	0.70	67	1.09
Hamlin County	1,613	58	0.28	127	1.33	157	2.03	196	3.18
Hand County	842	21	0.10	51	0.53	64	0.83	81	1.31
Hanson County	428	10	0.05	26	0.27	32	0.41	41	0.66
Harding County	325	6	0.03	10	0.10	12	0.18	15	0.24
Hughes County	8,993	238	1.13	526	5.50	650	8.41	815	13.21
Hutchinson County	2,448	75	0.36	150	1.57	182	2.38	225	3.65
Hyde County	718	1	0.00	2	0.02	3	0.04	4	0.06
Jackson County	344	19	0.09	38	0.40	47	0.61	57	0.92
Jerauld County	1,172	4	0.02	9	0.09	11	0.14	13	0.21
Jones County	484	13	0.06	49	0.51	65	0.84	86	1.39
Kingsbury County	1,335	47	0.22	92	0.96	112	1.45	138	2.24
Lake County	4,956	104	0.49	244	2.55	304	3.93	384	6.23
Lawrence County	10,343	333	1.58	704	7.37	861	11.14	1,072	17.38
Lincoln County	5,485	24	0.11	62	0.65	78	1.01	100	1.62
Lyman County	1,359	27	0.13	58	0.61	72	0.93	90	1.46
McCook County	1,547	119	0.57	227	2.38	272	3.52	333	5.40
McPherson County	270	7	0.03	12	0.13	15	0.19	18	0.29
Marshall County	1,291	44	0.21	84	0.88	101	1.31	123	1.99
Meade County	4,735	57	0.27	128	1.32	156	2.02	195	3.18
Mellette County	213	0	0.00	0	0.00	0	0.00	0	0.00
Miner County	833	3	0.01	11	0.12	14	0.18	18	0.29
Minnehaha County	113,697	1,269	6.03	2,879	30.13	3,569	46.19	4,495	72.88
Moody County	1,876	26	0.12	53	0.55	64	0.83	79	1.28
Pennington County	51,591	1,127	5.38	2,339	24.48	2,856	36.96	3,545	57.47
Perkins County	1,682	33	0.16	80	0.84	100	1.29	128	2.08
Potter County	1,155	11	0.05	21	0.22	26	0.34	32	0.52
Roberts County	3,853	51	0.24	110	1.15	135	1.75	169	2.74
Sanborn County	1,145	7	0.03	17	0.18	21	0.27	26	0.42
Shannon County	3,138	27	0.13	69	0.72	87	1.13	111	1.80
Spink County	4,264	26	0.12	58	0.61	72	0.93	91	1.48
Stanley County	974	24	0.11	57	0.60	71	0.92	89	1.44
Sully County	73	0	0.00	0	0.00	0	0.00	0	0.00
Todd County	3,527	79	0.38	158	1.65	192	2.48	238	3.86
Tripp County	2,787	181	0.86	370	3.87	451	5.84	559	9.06
Turner County	1,140	15	0.07	51	0.53	67	0.87	88	1.43
Union County	8,908	73	0.35	180	1.88	227	2.94	289	4.69
Walworth County	2,259	58	0.28	131	1.37	163	2.11	205	3.32
Yankton County	13,964	272	1.29	582	6.19	729	9.43	912	14.79
Ziebach County	4,181	0	0.00	0	0.00	0	0.00	0	0.00
County Totals	371,008	6,729	32	14,621	153	18,003	233	22,513	365